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EXAMINER	
KADING, JOSHUA A	

ART UNIT	PAPER NUMBER
2661	3

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/643,210	HEIL, TOM	
	Examiner	Art Unit	
	Joshua Kading	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,2,5,11-15 and 22 is/are rejected.

7)☒ Claim(s) 3,4,6-10 and 16-21 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

Claims 1, 3, and 5 are objected to because of the following informalities:

Claim 1, line 7 states, "side interface to the host device". It should read, --side interface connected to the host device--.

Claim 1, line 10 states, "interface to a corresponding". It should read, --interface connected to a corresponding--.

Claim 3, line 14 states, "interface to the storage devices". It should read, --interface connected to the storage devices--.

Claim 5, line 9 states, "to the second host device". It should read, --connected to the second host device--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 5, 11-15, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brendel et al. (U.S. Patent 5,774,660) in view of Opher et al. (U.S. Patent 5,345,558).

In regard to claim 1, Brendel et al. disclose "a storage network having a host device operative to access stored data, a plurality of storage devices operative to store the stored data and a switched fabric connecting the host device and the plurality of storage devices to communicate data access requests and transfer data between the host device and the storage devices, the switched fabric comprising:

a host-side link connected to the host device (figure 4, where element 10 is the host device and the link between the host device and element 32 is the host-side link) and including a host-side interface [connected] to the host device, the host-side interface sending and receiving data to and from the host device (figure 4, where the physical links between elements 10 and 32 constitute a host-side interface and clearly send and receive data between the host-side interface and the host device);

a plurality of storage-side links connected to the plurality of storage devices (figure 4, where elements 36, 24 and 36B, 24' are the storage devices and the links between them and element 32 are the storage-side links) and each including a storage-side interface [connected] to a corresponding one of the storage devices, the storage-side interface sending and receiving data to and from the corresponding storage device (figure 4, where the physical links between 24 and 24' are storage-side interfaces and clearly send and receive data from the storage device); and

a switch...connected to the host-side link and the storage-side links and operative to establish communication channels between the host-side link and any of the storage-side links for transferring message packets including the data between the host device and any of the storage devices (figure 4, element 32; although element 32

is specified as a router, it performs the same general function of switching message packets to the appropriate destination as a switching fabric includes the switch as can be read in col. 4, lines 51-54), the switch matrix not establishing communication channels between the storage-side links (figure 4 shows no communication channels between the storage-side links)."

However, Brendel et al. lacks "a switch matrix connected to the host-side link..." Opher et al. however, disclose "a switch matrix...(figure 2, element 202 is a switch fabric that will be used as element 32 in Brendel; figure 8A are the contents of element 202; and col. 10, lines 8-13 show that the contents of element 202 can include "alternate switching fabrics" which include a matrix switching fabric as can be read in col. 2, lines 36-45)".

It would have been obvious to one with ordinary skill in the art at the time of invention to include the storage network with the matrix switch for the purpose of transporting packets of data to their appropriate destinations. The motivation is to effectively communicate data between two or more ends.

In regard to claim 2, Brendel et al. and Opher et al. disclose the network of claim 1. However, Brendel et al. lack "the switched fabric further comprises a switch connected to the host device and the storage devices; and the host-side link, the plurality of storage-side links and the switch matrix are integrated in the switch in a single integrated circuit." Opher et al. however, disclose "the switched fabric further comprises a switch connected to the host device and the storage devices (figure 8A

shows the contents of switch fabric 32 of Brendel et al. and where element 806 is a switch that is connected to the host device by connections 0 and 1 and connected to the storage devices through the outputs of stage 4 switches); and the host-side link, the plurality of storage-side links and the switch matrix are integrated in the switch in a single integrated circuit (Opher et al. does not explicitly say that "the host-side link, the plurality of storage-side links and the switch matrix are integrated in the switch in a single integrated circuit" however, Opher et al. does not need to explicitly say this as integrating these items on an IC is a design choice and the components that would be integrated onto the IC are still taught by Opher et al.)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the switch with the network of claim 1 for the reasons and motivation as in claim 1.

In regard to claim 5, Brendel et al. disclose "storage network of claim 1 further comprising:

a second host device, in addition to the host device first aforesaid, connected to the switched fabric (figure 4, element 10A is the second host device which is connected to the switch fabric 32);

and wherein:

the switched fabric further comprises a second host-side link, in addition to the host-side link first aforesaid (figure 4, where the link between the host device 10A and element 32 is the host-side link);

the second host-side link connects to the second host device and includes a second host-side interface, in addition to the host-side interface first aforesaid, [connected] to the second host device; the second host-side interface sends and receives the data to and from the second host device (figure 4, where the physical links between elements 10A and 32 constitute a second host-side interface and clearly send and receive data between the host-side interface and the host device); and

the switch...also connects to the second host-side link and is further operative to establish the communication channels between the second host-side link and any of the storage-side links for transferring the message packets including the data between the second host device and any of the storage devices (figure 4 where the switch matrix of element 32 is clearly connected to the host devices and the storage devices for communicating message packets)."

However, Brendel et al. lack "the switch matrix also connects channels..." Opher et al. however, further disclose "the switch matrix also connects channels...(figure 2, element 202 is a switch fabric that will be used as element 32 in Brendel; figure 8A are the contents of element 202; and col. 10, lines 8-13 show that the contents of element 202 can include "alternate switching fabrics" which include a matrix switching fabric as can be read in col. 2, lines 36-45)."

It would have been obvious to include the switch matrix with the network of claim 1 for the same reasons and motivation as in claim 1.

In regard to claim 11, Brendel et al. and Opher et al. disclose the network as defined in claim 1. However, Brendel et al. lack "the switched matrix comprises an edge switch." Opher et al. however, disclose "the switched matrix comprises an edge switch (figure 8A, where element 807 acts as an edge switch of the switching matrix as it is one of the last switches of the matrix before the data is transmitted to a connected device)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the edge switch with the network of claim 1 for the same reasons and motivation as in claim 1.

In regard to claim 12, Brendel et al. and Opher et al. disclose the network of claim 1. However, Opher et al. lack "a combination of the host device, the storage devices and the switched fabric comprises a data processing unit." Brendel et al. however, further disclose "a combination of the host device, the storage devices and the switched fabric comprises a data processing unit (figure 4, element 36, 24 and 10 both are a data processing unit in the sense that they both receive requested data and processing it for the user who requested it)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the data processing unit with the network of claim 1 for the same reasons and motivation as in claim 1.

In regard to claim 13, Brendel et al. and Opher et al. disclose the network of claim 12. However, Opher et al. lack "the data processing unit comprises a storage server." Brendel et al. however, further disclose "the data processing unit comprises a

storage server (figure 4, element 36, 24 is the storage server)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the storage server with the network of claim 12 for the same reasons and motivation as in claim 12.

In regard to claim 14, Brendel et al. and Opher et al. disclose the network of claim 12. However, Opher et al. lack "the data processing unit comprises a personal computer." Brendel et al. however, further disclose "the data processing unit comprises a personal computer (figure 4, element 10 where the "client browser" is a user requesting information from the World Wide Web on a personal computer as can be read in col. 2, lines 18-20)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the personal computer with the network of claim 12 for the same reasons and motivation as in claim 12.

In regard to claim 15, Brendel et al. disclose "a method of communicating data between a host device and a plurality of storage devices through a switched fabric comprising the steps of:

sending a data access request from the host device to the switched fabric (col. 2, lines 18-24 where the system of figure 1 works similarly to the system of figure 4 except that the data access requests and data are sent through switch 32 as can be read in col. 42-47);

directing the data access request to a selected one of the plurality of storage devices connected to the switched fabric (col. 4, lines 51-54);

sending the data access request from the switched fabric to the selected storage device (col. 4, lines 51-54); and

transferring data between the host device and the selected storage device in response to the data access request through the established data transfer path in the switched fabric between the host device and the selected storage device (col. 4, lines 59-64)."

However, Brendel et al. lack "establishing data transfer paths through the switched fabric from the host device to any of the storage devices and not between the storage devices; establishing one of the data transfer paths between the host device and the selected storage device through the switched fabric."

Opher et al. however, disclose "establishing data transfer paths through the switched fabric from the host device to any of the storage devices and not between the storage devices (figure 8A where it is clear from the paths between stages that there are several data transfer paths through the switched fabric 202 from the host device at one end to the storage devices at the other);

establishing one of the data transfer paths between the host device and the selected storage device through the switched fabric (figure 8A where the darkened path from input port 5 to output port 13 constitutes a single data transfer path setup between a the host device and the selected storage device)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the establishing data transfer paths with the method of

communicating so as to allow the data to easily flow through the network from one point to another. The motivation being effective data transfer through the network.

In regard to claim 22, Brendel et al. disclose "a storage network having a host device operative to access stored data, a plurality of storage devices operative to store the stored data and a switched fabric connecting the host device and the plurality of storage devices to communicate data access requests and transfer data between the host device and the storage devices, the switched fabric comprising:

a switch connected to the host device and the storage devices and comprising a single integrated circuit (figure 4, element 32; although element 32 is specified as a router, it performs the same general function of switching message packets to the appropriate destination as a switching fabric includes the switch as can be read in col. 4, lines 51-54);

a host-side link integrated in the switch and connected to the host device (figure 4, where element 10 is the host device and the link between the host device and element 32 is the host-side link) and including a host-side interface between the switch and the host device, the host-side interface sending and receiving data to and from the host device (figure 4, where the physical links between elements 10 and 32 constitute a host-side interface and clearly send and receive data between the host-side interface and the host device);

a plurality of storage-side links integrated in the switch and connected to the plurality of storage devices (figure 4, where elements 36, 24 and 36B, 24' are the

storage devices and the links between them and element 32 are the storage-side links) and each including a storage-side interface between the switch and a corresponding one of the storage devices, the storage-side interface sending and receiving data to and from the corresponding storage device (figure 4, where the physical links between 24 and 24' are storage-side interfaces and clearly send and receive data from the storage device); and..."

However, Brendel et al. lack "a switch matrix integrated in the switch and connected to the host-side link and the storage-side links and operative to establish communication channels between the host-side link and any of the storage-side links for transferring message packets including the data between the host device and any of the storage devices." Opher et al. however, disclose "a switch matrix integrated in the switch and connected to the host-side link and the storage-side links and operative to establish communication channels between the host-side link and any of the storage-side links for transferring message packets including the data between the host device and any of the storage devices (figure 2, element 202 is a switch fabric that will be used as element 32 in Brendel; figure 8A are the contents of element 202; and col. 10, lines 8-13 show that the contents of element 202 can include "alternate switching fabrics" which include a matrix switching fabric as can be read in col. 2, lines 36-45)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the storage network with the matrix switch for the purpose of transporting packets of data to their appropriate destinations. The motivation is to effectively communicate data between two or more ends.

Allowable Subject Matter

Claims 3, 4, 6, 7-10, and 16-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Kading whose telephone number is (703) 305-0342. The examiner can normally be reached on M-F: 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Olms can be reached on (703) 305-4703. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Joshua Kading
Examiner
Art Unit 2661

JK
November 7, 2003

KENNETH VANDERPUYE
PRIMARY EXAMINER